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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,214	10/28/2003	Hiroaki S. Hara	6872-0001-1	4508

7590

05/08/2006

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EXAMINER

CHU, HELEN OK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,214

Applicant(s)

HARA ET AL.

Examiner

Helen O. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 17-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/6/06, 8/17/05, 6/6/05, 10/25/04, 3/1/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-16 in the reply filed on March 2, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-6 recites the limitation "said particles" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "cathode catalyst layer" in line. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "anode catalyst layer" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 1-12 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. The recitation "greater than about" does

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not give a definite claim. "Greater than" is more than the amount specified and "about" can be a less, more or the exact amount specified. For purposes of compact prosecution, the Examiner has interpreted the recitation "greater than about" as "greater than or equal."

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, and 11-16 rejected under 35 U.S.C. 102(e) as being anticipated by Hampden-Smith et al. (US Publication 2003/0198849 A1).

In regards to claim 1 and 11-13, the Hampden-Smith et al. reference teaches a fuel cell (Paragraph 3, Line 4) with an anode and a cathode that comprises mainly of electrocatalyst such as platinum or platinum group metals. The clusters or crystallites (Paragraph 102, Line 4) platinum are active species that are supported and dispersed on a conductive support such as carbon (Paragraph 266, Lines1-6). The carbon support can be an aerogel (Paragraph 102, Line 8) with a surface area ranging from 700 m²/g to 1400 m²/g (Table 1) and pore sizes ranging from 30 to 55 nm (which is greater than Applicant's limitation of 4nm or 15nm; Paragraph 196) dependent on the carbon used.

The Hampden-Smith et al. discloses the average size of the active species is about 3 nm (Paragraph 122, Lines 9).

In regards to claim 2, the Hampden-Smith et al reference discloses the carbon particles supporting the dispersed active species phase typically do not exist as discrete particles but tend to associate to form structures that contain a number of discrete particles (Paragraph 102, Lines 14-17).

In regards to claims, 14-16, the Hampden-Smith et al reference discloses the aggregate electrocatalyst particles preferably include a carbon support phase, more preferably at least about 1 weight percent active species phase, more preferably at least about 5 weight percent active species phase and another embodiment of 20-80% of the active species phase (Paragraph 121, Lines 4-11).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hampden-Smith et al.

The Hampden-Smith et al. reference teaches the elements of claims 1, 2, and 11-16 above and incorporates herein. The disclosure of Hampden-Smith et al. reference differs from the Applicant's claims in that the Hampden-Smith et al. do not disclose the specific ranges of dispersion rate and active surface area. However, Hampden-Smith et

al recognizes that high surface area combined with dispersion rate of the active species generally leads to increased catalytic activity in an energy device (Paragraph 120, Lines 10-14. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to choose the claimed range of dispersion rate and surface area through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values involve only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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HOC

A handwritten signature in black ink, appearing to read 'Dah-Wei Yuan', with a long horizontal flourish extending to the right.

DAH-WEI YUAN
PRIMARY EXAMINER